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AUTHOR Wolverton, Mimi
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ABSTRACT

A modified version of gap analysis, an assessment tool used in professional service industries, was tested for its applicability in higher education. The model helps researchers discern the existence of gaps in organizational communication that influence stakeholder expectations and perceptions of quality. An exploratory study was undertaken during 1991-1992 to determine the existence (or lack) of quality gaps in a doctoral program in educational administration at a public university. Interviews were conducted with current students, nine program faculty and two administrators, recent program graduates, future employers such as superintendents, and current students in another institution's educational administration program. Gaps were identified in the organization's internal and external communication systems. The gaps concerned differences in perceptions of the expectations held by the different stakeholders (e.g., difference between student expectations and faculty perceptions of student expectations and differences between administrator expectations for the program and faculty perceptions of administrator expectations.) The model helped to clearly identify points in program and department operations in the education administration program which deserved attention at the university with a clarity that is sometimes missing in program assessment. (Contains 18 references.) (SW)

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Q-GAP: A Data Analysis Model for Assessing Program Quality

by

Mimi Wolverton

presented at

the

Association for Institutional Research (AIR) Conference

May 1995

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Mimi Wolverton is currently serving as post doctoral fellow in educational leadership and policy studies at Arizona State University, Tempe, Arizona.

Mailing Address: Mimi Wolverton
2333 E. Southern Avenue #2064
Tempe, AZ 85282
602-838-5985
E-Mail: ASMMW@ASUVM.INRE.ASU.EDU

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Abstract

A modified version of gap analysis, an assessment tool used in professional service industries, was tested for its applicability in higher education. The model helps researchers discern the existence of gaps in organizational communication that influence stakeholder expectations and perceptions of quality. In the revised model (Q-Gap), discrepancies can appear in five areas--information (Gaps 1 and 2), vision (Gap 3), performance (Gap 4) and communication (Gap 5). The existence and severity of these gaps determines the extent of the quality gap (Gap 6). The model allowed the researcher to surface points in program and departmental operations in the education administration program at Central University, which deserved attention, with a clarity that is sometimes missing in program assessment.

for Management Research, Policy Analysis, and Planning

This paper was presented at the Thirty-Fifth Annual Forum of the Association for Institutional Research held at the Boston Sheraton Hotel & Towers, Boston, Massacusetts, May 28-31, 1995. This paper was reviewed by the AIR Forum Publications Committee and was judged to be of high quality and of interest to others concerned with the research of higher education. It has therefore been selected to be included in the ERIC Collection of Forum Papers.

Jean Endo
Editor
AIR Forum Publications

Q-GAP: A Data Analysis Model for Assessing Program Quality

From 1980 to 1990, federal appropriations for postsecondary education, excluding funds for university research, declined 25% (Ottinger, 1992). Across the nation in the five years between 1988 and 1993, state general fund spending on higher education fell from 14.6% to 12.2% (Layzell et al, 1994). Similarly, education's percentage of discretionary spending decreased 0.7% during the one-year period, 1991 to 1992 (Ottinger, 1992). Current federal debates about student aid and the increase in legislative actions that continue to reduce public funding roles suggest that future funding patterns will not differ greatly from those of the past fifteen years. Planning to ensure education quality, as a consequence, has become an imperative; and failure to anticipate tomorrow's fiscal challenges and curricular demands can threaten the viability of a program (Guskin, 1994; Kerr et al, 1994; Bok, 1992).

Education quality, however, can be illusive. It is contextual; student needs change and faculty strengths vary. People commonly claim that education quality exists or that it does not; they set standards (that may be inappropriate) by which it should be measured; but few define it. Fewer still have arrived at a way to assess education quality in a manner that provides educators with reliable data that can be used to make informed decisions about academic programming. Perhaps, it is time to take a slightly different tack (Kerr et al, 1994b; Layzell et al, 1994; Breneman, 1993; Mingle, 1993). This paper describes the assessment methodology used in an exploratory study conducted during the 1991 - 1992 academic year that was designed to ascertain the existence (or lack) of quality gaps in a graduate program at a public university.

The PZB Model

The diagnostic tool used in the assessment derives from a conceptual model developed by Parasuraman, Zeithaml and Berry (PZB) over a ten year period. It builds on a specific notion of quality. In simple terms, quality is the absence of variance (Shepard, 1991). To the product

manufacturer this means zero defects. In service industries, quality evolves into a measure of how well the service delivered matches customer expectations (Lewis and Booms, 1983). People judge whether a service meets their expectations based on what they hear about the service (word of mouth), their past experience with the service and their personal need for the service.

Using this idea of service quality, Parasuraman, Zeithaml and Berry arrived at a conceptual framework, which indicates that consumers' quality perceptions are influenced by a series of distinct gaps occurring in organizations. These gaps are related to various types of communication that organizations engage in and over which they can exercise some degree of control. The process used to identify these gaps is called gap analysis. During the course of their research, Parasuraman and others conducted extensive focus group interviews in four nationally recognized service organizations--a retail bank, a brokerage house, a credit card company and a repair and maintenance firm--and followed up with four sets of executive interviews. They found that while some perceptions of service quality were industry-specific, commonalities among the industries prevailed in both the group and executive interviews. One of the most important insights gained from their initial research suggests the existence of a set of key discrepancies regarding executive perceptions of service quality and the tasks associated with service delivery to consumers. Further, these gaps, when they existed resulted in a difference between the expectations of service consumers and their perceptions of the service received. (PZB, 1985).

PZB name four potential gaps--marketing information, standards, service performance and communication--that contribute to service quality deficiencies. The extent to which a fifth or quality gap exists is determined by the existence and severity of the first four gaps (ZBP, 1988). These gaps are defined as follows:

> Marketing Information Gap--an inadequate or inaccurate management understanding of customer service expectations;

> Standards Gap--management's failure to develop service performance specifications reflecting customer expectations (originally defined in terms of control and reward systems, but later redefined in terms of developing and articulating an organizational vision or direction);
>
> Service Performance Gap--a discrepancy between service performance specifications and the service actually delivered;
>
> Communication Gap--a discrepancy between communications to the customer describing the service and the actual service delivered; and
>
> Quality Gap--a discrepancy between the expected level of service and the perceived level of service received (PBZ, 1990).

Following their initial research, Parasuraman and others devised a survey instrument called SERVQUAL (PZB, 1988) in an attempt to discern and quantify the magnitude and direction of each gap. Although researchers (for example, Ramaseshan and Pitt, 1990) have experimented in business schools with a modified version of SERVQUAL, both the original researchers and those who have tried to adapt SERVQUAL to education have ignored the potential of the more qualitative aspects of the gap analysis process. For instance, the descriptive nature of gap analysis allows those assessing a program to probe for greater detail and clarity than often typifies survey research. In addition, they failed to recognize the fundamental difference that exists between service industries and professional services.

For professional services, the concept of quality is less straightforward and more complicated. The determination of quality no longer relies solely on the demands and expectations of the customers. This is because, typically, professionals are experts in their fields and possess more knowledge about the strengths, weaknesses and potential of the service they offer than do their customers or clients. Unlike frontline employees in service industries who have limited say in what goes on in the companies for which they work, service professionals, most often, are the primary decision makers in their organizations.

Quality, under these circumstances, can no longer be determined exclusively on the basis of customer expectations, but must be jointly specified by the customer and the service provider (Brown and Swartz, 1989). If we think of education as a professional service, we can begin to define education quality in service terms.

In the case of higher education, quality reflects the extent to which an education experience balances what the student expects to gain from the experience, and what practitioners (future employers) expect the student to gain, with what the educator believes the student needs to gain from the experience. Given this definition, the degree to which the education delivered matches student, practitioner and educator expectations could provide a measure of quality (adapted from Brown and Swartz, 1989). Under such a scenario, to determine quality we need to identify differences between stakeholder expectations and perceptions of quality. Data that earmark the areas where program change holds the greatest potential for impact on program quality become crucial. The challenge is to arrive at a systematic method for discerning where these areas lie.

The Study

The purpose of this study was to modify and then test the applicability to higher education of the gap or service quality analysis model. The study examines a highly visible program at Central University (a pseudonym), which trains and educates future leaders in an industry (K-12 public education) that finds itself in the throes of change. Reforms like site-based management, calls for team work, and experimentation with continuous quality improvement at the primary and secondary levels suggest that supervisory roles in schools may require redefinition. The pertinent question for the university's doctoral program in

educational administration (EDA EdD) at the time of the study was--Can the present level of quality in the EDA EdD program effectively meet the future demands of its constituency?

Faculty and program administrators described the program as solid, relevant and, at least in some instances, on the cutting edge; a description that seemed to be supported by its national reputation and excellent accreditation reviews. Students wanted to think that Central offered the highest quality program among those readily accessible to them but were not altogether sure that it did. Educational practitioners (school superintendents) thought that the program should be the best one available, but were pretty sure that it was not. Clearly, a commonly held view of program quality did not exist.

To test the gap analysis process in education, PZB's gap model was modified to reflect a series of perceptual gaps that relate to expected and experienced levels of education quality (as defined earlier). In the revised model (Q-Gap), discrepancies can appear in five areas--information (Gaps 1 and 2), vision (Gap 3), education performance (Gap 4), communication (Gap 5) and quality (Gap 6):

> Gap 1--Information: The difference between student expectations and faculty (and administrator) perceptions of student expectations;
>
> Gap 2--Information: The difference between future employer (and future course work faculty) expectations and present program faculty (and administrator) perceptions of said expectations;
>
> Gap 3--Vision: The difference between program administrator expectations of the program and faculty perceptions of administrator expectations;
>
> Gap 4--Education Performance: The difference between the education program each group--students, future employers and faculty--would like to see delivered and the perceptions of the program which is actually delivered (as reflected by its strengths and weaknesses);
>
> Gap 5--Communication: The difference between the program and what is communicated about the program; and

Gap 6--Quality: The degree to which the education delivered differs from student, practitioner and educator expectations.

Figure 1 depicts the relationship between these gaps. Gaps revealed during the faculty and program administrator interviews are shown in the lower portion of the diagram. Those exposed during the course of the focused interviews with students and practitioners are depicted above the provider - consumer interaction line.

Methodology

Using a qualitative format similar to that employed by PZB (1985), the researcher interviewed focus groups in each of four categories--current students, recent program graduates, local practitioners (future employers such as superintendents) and current students in Neighboring University's (also a pseudonym) education administration program. All program faculty (9) and administrators (2) were individually interviewed. Interviews were conducted following the guidelines set forth by Seidman (1991) and Krueger (1988). Inquiries concentrated on participant expectations and perceptions. The following set of questions, which were used in each group and individual interview focused on areas over which the department had direct control.

- How did you first learn about Central's EDA EdD program? What facts or "feelings" were communicated to you about the program?

- Prior to entering the program, what expectations did you hold?

- Of these expectations, which were met, were partially met, were not met, were exceeded?

- What do you see as the strengths and weaknesses of the program?

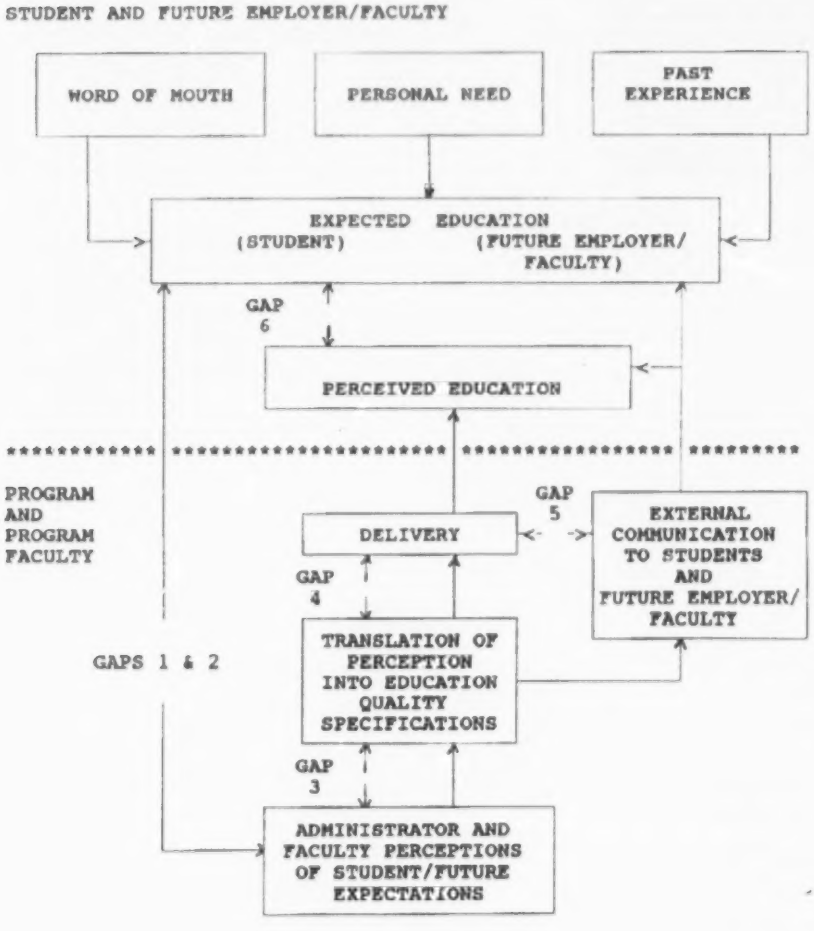
- Describe the ideal EDA EdD program.

Additional probing expanded the information gained and brought out insights that might have otherwise been missed. Originally, it was assumed that current student responses would differ significantly from those of recent program graduates and current students at Neighboring. However, when data from these groups were analyzed, only minor differences appeared. Likewise, program administrators and faculty often held similar views. Consequently, the common information from these groups was synthesized and is jointly reported. In the few instances where differences in opinion were substantial, they have been duly noted. Collected data were coded, sorted and analyzed several times and then classified by gap category (Strauss, 1987). In keeping with the precepts of investigative research, only generic references to individuals or groups of individuals have been used. Drafts of the analysis were shared with participants as a member check for accuracy (Lincoln and Guba, 1985).

Study Results

The study identified gaps in all five areas of the organization's internal and external communication systems. For instance, faculty perceptions of student expectations (Gap 1) fell short. While at least one faculty member or administrator mentioned each of the students' primary expectations, department members carried with them partial pictures. No one fully comprehended what students expected. Likewise, although administrators held a clear vision of what they expected the program to be, their failure to firmly set a direction for the program created the impression among faculty that the program was not a particularly high departmental priority (Gap 3). The following sections illustrate the depth of information gained through the gap assessment.

Figure 1: Conceptual Model of Education Quality



Adapted from Zeithaml, Berry and Parasuraman, 1988.

GAP 1: The difference between student expectations and faculty perceptions of student expectations

Upon entering the EDA EdD program, students expected the program to be demanding, time consuming, difficult and intellectually challenging. They presumed that the program would be individually tailored to their needs and provide them with opportunities to network with other educators, that program content would be pertinent, and that faculty would mentor them through the process. As one graduate put it, "I thought that I would learn things that would make me more effective on the job..." In addition, they expected to benefit professionally from a supposed close working relationship between their individual school districts and Central's faculty members--"We thought the community actively sought out Central because it was seen as a valuable resource." Although some students expected prejudicial treatment (predicated on race), they admitted that they had experienced little.

Faculty and program administrators, all cited marketability and course work applicability as primary student expectations. Administrators recognized networking as a student expectation, but faculty did not sense its importance. While students expressed a desire for self-fulfillment, faculty and administrators thought that their students were most concerned with career mobility and increased financial rewards. No faculty member commented on either the possibilities of discriminatory behavior or faculty-community relations.

Gap 2: The difference between practitioner expectations and program faculty and administrator perceptions of practitioner expectations

Practitioners expected the program to produce education leaders "who are ready to perform with little or no further training." Practitioners assumed that the EDA EdD program would graduate hard-working risk takers "who can see the big picture and who can recognize and appreciate high quality." They also stressed a need for departmental involvement in conferences and professional meetings with schools and districts.

While administrator and faculty perceptions of practitioner expectations were fairly accurate, they were not nearly as detailed and failed to include the university program/local school and community interactive aspects. Program administrators did highlight a perceived expectation of fair and nondiscriminatory treatment of students that did not surface in the interviews with practitioners.

GAP 3: The difference between administrator expectations for the program and faculty perceptions of administrator expectations

The program coordinator expected the program to have a strong clinical emphasis that incorporated as much hands-on experience as possible. The department chair also expected the program to have a practice-oriented focus. In addition, he envisioned a student-centered program that balanced what students saw as their needs with what the faculty perceived to be their students' needs. He wanted the program to aspire to be sensitive to minority and gender issues and to be open to and actively soliciting input and feedback from a variety of sources. In all, he expected to see a program in which students and faculty, alike, could take pride.

For the most part, faculty members had an unclear notion of what administration expectations were. Some assumed that the coordinator's expectations coincided with their own program expectations. Others supposed that good teaching and advising from the faculty and "successful student performance so that the program would not be embarrassed" met administrative criteria. No one seemed to be able to pinpoint what the department chair had in mind; several questioned the degree of his commitment to the EDA EdD program.

GAP 4: The difference between the education program each group--students, practitioners and faculty/administrators--would like to see delivered and each group's perceptions of the program which is actually delivered (as reflected by its strengths and weaknesses)

Students pictured a program built on a foundation of systematic advisement, which starts early on and continues throughout the entire program. Such a program includes early committee formation, early program of study formulation and early dissertation topic determination. Students voiced a desire for orientation seminars at the beginning of the program, prior to the comprehensive exam and

again, before dissertation proposal preparation. In addition, students advocated strong mentorship relationships between faculty and students, rigorous grading and screening of students, strict faculty accountability, and timely internal and community-based external program evaluation. They suggested the need for jointly facilitated and funded school-district/university mechanisms such as sabbaticals, scholarships or stipends that would allow full-time attendance for some part of the program. Students wanted hands-on experience that exposed them to contemporary issues like leadership, cultural heterogeneity, curriculum and instructional supervision, finance, law, participative and strategic management, TQM, team building, collaboration, politics, statistical interpretation, conflict resolution and communication skills, but not to the total exclusion of theory.

Practitioners seemed to agree with the general thrust of student recommendations. "Emphasize the why, not just the how, of decision making, management and conflict resolution." In addition, they listed the following options: field-based offices for Central faculty at schools throughout the community, a faculty shadowing program where Central faculty members would periodically observe a practicing administrator in action, and greater use of adjunct faculty recruited from school district offices. They also recommended course sequencing that supported student shadowing activities, a greater concentration on written and oral communications and the incorporation of current leadership literature and research from business into the program's course work.

Faculty members held many common ideas about program design. For the most part, they promoted the notion of a smaller program organized around some sort of lock-stepped blocking system. Some described the optimal program as one that revolves around full-time students. Similar to both students and practitioners, faculty stressed mentoring and faculty on-site involvement. Some attention was paid to dissertation alternatives such as scholarly writing and group dissertations, to better student and program evaluation and the inclusion of cultural awareness across the curriculum.

When students looked at the strengths and weaknesses of the current program, they generally

agreed that advisement was either nonexistent or at best erratic. For example, students lamented about a one-hour seminar taken shortly before they began work on their dissertations, "We go into that class and find out, after the fact, how we could have avoided much of the hassle that we encountered in getting through the program...." They agreed that the curriculum was somewhat pertinent but suffered from a lack of cohesion and poor sequencing, and that quality, relevancy and currency were not consistent across all courses. "In some instances, courses are grocery lists of administrative duties; and teachers seem out of touch with what is happening in the field." In others, "instructors water down the requirements...so that everybody gets decent grades." Students felt that the connection between theory and practice was weak and that some classes duplicated others. They complained, "Curriculum and instructional supervision, conflict resolution and written and verbal communications as they relate to real-world situations are areas the program fails to address." Even though minority students felt well-treated, all students agreed that cultural diversity issues and how they affect school administration were not addressed by the curriculum. Interestingly, while current students dreaded the dissertation process, recent graduates said, "Writing the dissertation made the whole experience worthwhile."

Practitioners saw some currency in the program especially in areas such as finance and law; however, all described Central's program as focused on research and not in touch with what happens in the field. To them, the "lack of faculty involvement in the schools, little practitioner input into the program, no real view of what a graduate should look like, few new faculty members, questionable student quality and a weak link between research and practice" handicapped Central's program.

In contrast, two-thirds of the faculty felt that there was a strong emphasis on current, relevant topics that tied theory to practice in a unique balance. They believed that many of their "students were too far along in their course work before they applied to the program to allow for proper advisement." When asked about program strengths, they responded, "The faculty is good, interested in

the students and fair." Several mentioned that although Central had the opportunity to draw from the multi-cultural community that surrounds it, the program had failed to do so and needed to inject cultural awareness into each class across the entire curriculum. Several saw scarcity of funding for assistantships as an impediment to full-time residency.

While most major components of a desirable program surfaced in discussions with all three groups, the student descriptions were far more specific. As far as the present program was concerned, students and practitioners were in general agreement about its strengths and weaknesses. Faculty members, however, judged the program more relevant and more practically oriented than did either of the other groups. All three sectors discerned a gap between what was desired and what was actually delivered, although students and practitioners seemed to be describing a wider gap than faculty members.

GAP 5: A difference between the program and what is communicated about the program

The EdD in Educational Administration is one of three nationally ranked doctoral programs housed within the Educational Leadership Department of the College of Education. It is designed for practitioners involved in K-12 school administration. Complementing this degree are the EdD in Higher Education, which is geared toward practitioners at the community college, college and university levels, and a PhD in Educational Leadership.

At the time of the assessment, admission to the program was based on a combination of grade point averages, letters of recommendation, student interests and goals, work experience and either a GRE or GMAT score. Program requirements included: a minimum of 12 hours practicum, 3 hours curriculum development with up to 9 hours more in a supporting area of study, two of the following three seminars (each 3 hours)--administrative leadership, administration of instructional improvement, administrative management, 12 hours in research tools, a one hour pre-dissertation seminar, 3 hours in learning and instruction, 3 hours focused on the American school system, 6 hours of research and 18

hours of dissertation work. Thirty semester hours completed within eighteen consecutive months fulfilled the program's residency requirement.

What was believed about or had been heard about the program varied depending on the amount of direct contact with Central, and in particular, with the program itself. Prior to entering the program, students had viewed the EdD as a professional degree, which was distinct from the PhD research degree. They had heard that the degree was marketable but that the program was difficult to get through. The phrase "degree of perseverance" was often used to describe the end product. They thought that the "primary admission criterion was the GRE..." and generally found the program "unfriendly and inflexible." To them, the program seemed to be of fairly good quality, but they felt that the dissertation process was not producing valuable work that impacted the education community. For the most part, they saw no difference between Central and Neighboring's students or program content.

Practitioners and Neighboring students viewed Central's program as research-oriented and theory-laden. In contrast, they believed that Neighboring took a practical, hands-on approach--"Central develops researchers; Neighboring develops educators." To them, Neighboring was more student-centered, supportive, flexible, more current and in contact with the education community around it.

When it came to program and department particulars, these two groups' perceptions were less accurate than those held by Central students. Most were unaware of the existence of the EdD in Higher Education and thought that the focus of the entire department was K-12. To the Neighboring students, Central's program required a one-year, full-time residency; admittance was based solely on the GRE; and the only difference between the EdD and the PhD was a language requirement (which did not exist). They suspected, however, that the PhD was looked upon by the faculty as a better degree.

Practitioners regarded the program as "in transition" and maintained that the faculty couldn't decide whether or not the degree was necessary, and if it was necessary, whether it should be a research degree or a professional degree." Practitioners believed entry standards were too low and based solely on the letters of recommendation. To them, Central's educational administration program was invisible.

Gap 6: The degree to which the education delivered differs from student, practitioner and educator expectations

Clearly, confusing messages were being sent and received about the EDA EdD program. A comment made by one faculty member, "We may agree on more than we think we do," indicated that formal internal communications channels were, at best, ineffective (Gaps 1 and 2). Consistent patterns of misinformation among Neighboring students and practitioners pointed to a need to improve weak communication links with the community (Gaps 2 and 5). Even among Central students uncertainties about program particulars and its direction and the expectations that faculty held for students were common (Gap 1). Discrepancies, however, appeared to be far more blatant among program outsiders (Gap 5). The lack of an articulated program vision created uncertainties among both local practitioners who questioned the program's focus and faculty, who doubted its importance to the department (Gap 3). Recurring concerns about program advisement, course content relevance, residency requirements and cultural awareness pointed to discontinuities between the program that most stakeholders wanted and the program that was actually delivered (Gap 4). In sum, communication gaps in internal and external information dissemination, vision articulation and performance contributed to a difference between the expected level of education quality and the perceived quality of the education received (Gap 6).

The Strengths of Q-Gap

In the case of Central's educational administration program, gap analysis identified dichotomous relationships that had, in the past, either gone unnoticed, been ignored or been

minimized. For instance, faculty aware of the theory versus applied debate chose to ignore its significance and, by doing so, failed to explain to other program stakeholders the link between research and application. Likewise, by minimizing charges of lackluster faculty/school involvement, they perpetuated an image of elitism and disinterest. Similarly, calls for greater emphasis on written and oral communication by practitioners and students, but not faculty, suggests a concern that up to this point had gone unnoticed by the faculty.

In addition, the comprehensive nature of the data collected and its clear organization via the model helped spur faculty to action. For example, repeated references to program incohesiveness and the inability of students to network reinforced faculty and administrator suspicions that organizing students into smaller cohorts could improve the program. In general, the personal connections among stakeholders that this type of analysis fosters may lead to insights that could escape detection in survey research and more statistically oriented forms of assessment.

The Limitations of Q-Gap

Although gap analysis provided the educational administration program with significant information, the process has its limitations. First, gap analysis is time consuming. It took almost one full semester to coordinate focus group and participant schedules (to say nothing of meeting room availability). The logistics of recruiting focus group members involved several mailings and at least two phone calls to each perspective member. Each focus group interview (six in all) ran two hours and individual interviews (eleven) consumed, on average, one hour each. (Note: The larger the program, the greater the number of focus groups and interviews required.) Once data were collected, the analysis and the preparation of the report took close to 100 hours. If a team of researchers can be used to speed up the process, or if the purpose of the assessment has more to do with expanding the current base of knowledge about education quality and assessment than with evaluation, then

organizational size would probably not be crucial. Assessment timeliness, however, may restrict Q-Gap's applicability to small or medium sized organizations.

Second, researchers need to be experienced in conducting focus groups. Stakeholders with pre-conceived agendas can easily monopolize an interview session and, in doing so, silence others. The ability to involve all focus group members and to balance their involvement is essential. Third, the process has its costs, which include the researchers, clerical support staff to handle mailings and some of the phone calls, notetakers at the focus group sessions or transcribers if the interviews are recorded, and postage and supplies. To put focus groups at ease, meetings were held in neutral territory away from the College of Education and refreshments were served. Each added to the expense of the project.

Finally, Q-Gap identifies areas of mis- or nonexistent communication, but it does not necessarily explain why these gaps exist or give an indication of how best to lessen or eliminate them. For example, the underlying cause for communication gaps between faculty and administrators may be distrust and political conflict over power and authority. These gaps demand different types of resolution than misperceptions that result because different stakeholders have different interests and function from different realities--all the while believing that everyone else sees the world from their individual perspectives. In the first case, using a micropolitical framework to further examine the communication gap adds clarity to the assessment and may suggest ways to remedy such problems. In the second, a postmodern framework that recognizes the existence of multiple realities adds depth to the study. As one administrator put it, "Q-Gap provided us with a very good way to begin...."

Implications for the Future

Shortcomings not withstanding, evidence gathered from this study indicates that a revised version of Parasuraman, Zeithaml and Berry's gap model holds potential as a diagnostic tool for assessing education programs and systematically pinpointing areas where program change could have

the greatest effect on program quality. It seems likely that a similar model could also be developed to gauge departmental quality.

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